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NOV 16 1998  
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12 November 1998

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Arcata, CA 95521-5582

John Munn  
California Department of Forestry  
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Sacramento, CA 95814

RE: Public Comments on the Pacific Lumber Company's (PALCO) Draft Habitat Conservation Plan/Incidental Take Permit/Sustained Yield Plan, and U.S. Fish and Wildlife Service's and California Department of Forestry's Draft Environmental Impact Statement/Report, Permit Number PRT-828950 and 1157

Dear Mr. Halstead and Mr. Munn:

I am a Research Wildlife Biologist and Senior Faculty Research Assistant with the Oregon Cooperative Wildlife Research Unit (OCWRU) at Oregon State University. I have been conducting research specific to the Marbled Murrelet in western Oregon since 1988. I lead the Marbled Murrelet research program for the OCWRU in the State of Oregon. My research on murrelets has focused on their behavior, nest-site characteristics, breeding biology, and habitat associations. In addition, I helped to develop survey techniques for this species and am an author of the Pacific Seabird Group (PSG) Survey Protocol for surveying Marbled Murrelets in forests (Ralph et al. 1994). I have visited most known murrelet nests in Washington, Oregon and California and am familiar with the habitat of many occupied sites in these three states. I am also familiar with the results of most murrelet research projects that have been conducted throughout the murrelet's range. In August 1996, I visited some unentered old-growth and residual stands on PALCO lands, where I looked at the condition of the forests to assess the suitability of these stands for use by nesting murrelets. In doing so I visually (usually with binoculars) searched the canopy for the presence of suitable murrelet platforms ( $\geq 10$  cm in diameter).

I was requested to comment on the Draft Habitat Conservation Plan/Sustained Yield Plan (referred to herein as "HCP") and the Draft Environmental Impact Statement/Report (referred to herein as "EIS/EIR") by the Sierra Club and the Environmental Protection Information Center. My opinions expressed herein are based on a review of the HCP (Volume 1 and Volume IV, Part B), EIS/EIR (summary, Section 3.10, Appendix N), and Federal Register Vol 63:50883-50885.

## Summary of the HCP

It is my understanding from reading the above documents that the HCP proposes to sell the Headwaters forest and adjacent Elk Head Springs stands (7,503 ac including Elk River Timber Company lands) to the government, establish a series of Marbled Murrelet Conservation Areas (MMCAs; 7,455-8,500 ac including unsuitable habitat), enhance lower quality habitat within MMCAs, buffer (300 ft) PALCO lands that are adjacent to old-growth redwood on public land (421 ac), restrict new road building in MMCAs, and implement seasonal restrictions of logging activity within 1/4 mile of known active nests (until the chick fledges) and suitable nesting habitat on public land. Modified seasonal restrictions will be implemented during logging of Owl Creek or Grizzly Creek (1 May - 10 August). The reserves will provide 4,321-4,521 ac of unentered old-growth redwood (84-88% of available unentered old-growth redwood depending on cutting Owl Creek or Grizzly Creek) and 3,301-3,591 ac of residual old-growth redwood (27-29% of available residual redwood depending on cutting Owl Creek or Grizzly Creek). If AB 1986 is implemented and both Owl and Grizzly Creek are preserved for the life of the permit, the reserve acreages above will be slightly larger.

Under the assumption that residual habitat is very low quality and therefore not important to murrelets, 619-818 ac unentered and 8,855-9,146 ac residual old-growth redwood will be harvested, even though 28% percent of the habitat to be logged is known to be occupied. The remainder of the unentered and residual old-growth has not been adequately surveyed. Twenty-three hundred acres of critical habitat will be harvested (EIS/EIR Table 3.10-6). The HCP estimates that 251-340 murrelets (17-23% of the southern Humboldt population) will be "taken".

All Douglas-fir forests are assumed to be unsuitable for murrelets and 8,304-8,323 ac of this forest type (unentered and residual) will be harvested.

## Lack of Data on Residual Habitat Use

The HCP does not present sufficient information on murrelet use of residual stands or an adequate description of the key components of residual habitat important to murrelets (e.g., platform abundance) for anyone to complete a precise assessment of the impact of this plan on the survival and recovery of the murrelet. This lack of information and the need to make assumptions about residual habitat use is admitted in the HCP (IV-B1 pages 3, 6-9) and EIS/EIR (Appendix N pages 1-2, 5-20; 3.10 pages 41-47). Yet with only limited protocol surveys (which in some cases show high activity in residual habitat; HCP IV-B7, PVA Panel Meetings) and the supposition that residual redwood is probably lower quality than unentered redwood, the HCP and the EIS/EIR assume that harvesting most of the residual redwood will have no significant impact on the species in the long term.

PALCO has known for a long time that more information was needed on the residual habitat. At the June 1997 and November 1997 (and possibly the November 1996) Scientific Committee meetings headed by Steven Courtney, it was recommended by attendees and the Science Advisory Panel that more information be collected on the residual habitat including surveys for murrelets and an estimate of platform density (HCP IV-B7, PVA Panel Meetings). The Redwood Sciences Lab said they would be collecting some of this information. If it was collected it was not presented in the HCP.

HN-1

If I were to attempt to make an assessment of murrelet use of residual habitat on PALCO lands, I would want information on occupancy, platform abundance and nest success. Given that this information is not available in the HCP, I will summarize what is known about murrelets and residuals from the HCP and research on the species: (1) more than one quarter of the residual is known to be occupied (an indication of murrelet nesting); the rest of the residual habitat has not been adequately surveyed (EIS/EIR page 9); (2) murrelet detections are high in some of the residual stands that have been surveyed (HCP IV-B7, PVA Panel Meetings); (3) many of the residual stands have suitable nesting platforms (based on my on-the-ground visits to some of the residual stands); (4) murrelets are known to nest in residual habitat in Oregon (Nelson, unpubl. data) and elsewhere in California (Mendocino County and Big Creek Lumber Company lands, E. Burkett, pers. comm.), and (5) two known nests on PALCO lands were in plots with <42% canopy cover and were located above the level of the surrounding forest (Kerns and Miller 1995). It is also my understanding, based on conversations with agency personnel familiar with the current conditions on PALCO lands, that the remaining residual stands are of higher quality to the murrelet than indicated in the HCP and EIS/EIR (i.e., over the last few years the lowest quality residual has been harvested because PALCO did not want to conduct surveys in the higher quality habitat that most likely is occupied). Therefore, available information suggests that residual habitat on PALCO lands is used by murrelets for nesting and there is a high likelihood that more residual stands will be found to be occupied if additional surveys are conducted.

KN-2

Quality of habitat is generally assessed based on reproductive success, and habitat suitability is based on characteristics of the habitat (e.g., platforms). No complete assessment of the quality of these residual or unentered stands (both occur in a fragmented landscape) can be made because there is no information on nest success relative to habitat type (except Kerns and Miller 1995 where a chick failed to fledge at the Elkhead Springs nest site). With respect to habitat suitability, the HCP and EIS/EIR ignore the available information on murrelet use of residual habitat (as summarized above) and assume that residual habitat is not "quality" habitat. By reviewing the above information on murrelet residual habitat use, the reasonable conclusion is that residual habitat is important to murrelets because they nest there.

KN-3

The HCP and EIS/EIR conclusion of no significant impact, which is based on limited data and misinterpretations of the data, lacks scientific credibility. On the Elliott State Forest in western Oregon, when there was a similar lack of data on murrelet habitat use, the U.S. Fish and Wildlife Service only granted the Oregon Department of Forestry Lands a six year HCP during which time they were: (1) not allowed to harvest any suitable or occupied habitat; (2) required to develop a model of murrelet habitat based on extensive on-the-ground surveys of platforms and other forest characteristics; and (3) required to fund research to determine details on murrelet nest-site characteristics and nest success in relation to habitat type (Oregon Department of Forestry 1995, pages III-2, IV-7, IV-10-11, IV-24, K-1-6). This type of approach seems appropriate for PALCO lands given the lack of information on residual stand quality.

KN-4

## (A) ESA

(1) Based on known information regarding murrelet use (occupancy/nesting) of residual habitat on PALCO lands and the assumption that nest success is probably no lower in some residual stands than in some unentered redwood stands, it is my opinion, based on the facts presented below, that the proposed HCP will jeopardize the survival and recovery of the northern California and Zone 4 populations of the Marbled Murrelet. This opinion is based on an assessment of actions on PALCO lands and cumulative impacts of other activities and disturbances. The preferred alternative (#2) will:

(a) provide inadequate protection for a threatened and declining population;

In 1992, the Marbled Murrelet was federally listed as threatened (U.S. Fish and Wildlife Service 1992) and state listed as an endangered species (California Fish and Game Commission 1992). Populations of the murrelet within the tri-state area (Oregon, Washington and California) are thought to be declining at a rate of at least 4-7% per year (Beissinger 1995). A graph from recent analyses of northern California at-sea data shows that the population has declined from 6,000 to 4,000 birds between 1989 and 1997, a 33% drop in numbers of birds in less than 10 years (HCP IV-B1, Figure 7; Ralph and Miller, unpubl. data). A reanalysis of this data by Amanda G. Stanley of the University of Washington demonstrates clear declines at an annual rate of 7.9% and 13.3% for the northern California and southern Humboldt populations respectively, and an overall decline of the northern California population of 48% between 1989 and 1996.

The HCP states that its goal is to enhance the probability of continued survival of the murrelet and in the long-term contribute to its survival and recovery (HCP IV-B1 page 6). The HCP (IV-B1 pages 19-22) and EIS/EIR (Appendix N page 2, 3.10-49) also state that the HCP is consistent with the principles of the Marbled Murrelet Recovery Plan (U.S. Fish and Wildlife Service 1997). However, the preferred alternative would save less half of the murrelet habitat than would be saved without issuing the permit, and therefore would contribute less to murrelet survival and recovery in the short term than is currently required under state and federal regulations. The HCP would also allow logging of occupied habitat, logging without murrelet surveys, and logging during the breeding season, all of which are not allowed under current regulations. It is admitted in the HCP (IV-B1 page 6) and EIS/EIR (Appendix N, page 1, Table 3.10-9) that the impacts of implementing the HCP will be significant in the short term. It is assumed that the short-term impacts will be offset in the long-term by the creation of blocks of suitable habitat.

It is my opinion that the HCP neither meets its goals nor is consistent with the Recovery Plan. If murrelet populations are currently declining with current amounts of habitat, then the likelihood of it continuing to decline with less habitat is a given. To survive, the murrelet must first make a substantial recovery and to recover the current declines must be arrested as soon as possible. Because the next 50-100 years have been identified as the critical period for the continued survival of this species (U.S. Fish and Wildlife Service 1997), the Recovery Plan specifically states that occupied habitat and large blocks of potential suitable habitat should be maintained during this time period (pages 119, 121, 128, 131-134). For Zone 4, the Recovery Plan specifically states that recovery actions should focus on preventing the loss of occupied

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nesting habitat and minimizing the loss of unoccupied but suitable habitat (page 128). Therefore to enhance the probability of continued survival of the murrelet, the HCP should maintain occupied and potentially occupied habitat in the short term. Because the HCP does not follow these guidelines it will appreciably reduce the likelihood of recovery of the species in the short term and therefore will not provide for its survival in Zone 4 in the long term.

KN-5

(b) allow the logging of occupied murrelet habitat;

The removal of 2,708-2,734 ac of occupied and an unknown amount of potential (unsurveyed but likely to be occupied) murrelet habitat within and outside the breeding season will cause a significant adverse impact to murrelet survival and recovery in both the short and long term (i.e., appreciably reduce the likelihood of survival and recovery). The HCP (IV-B1 page 37) proposes to log occupied and potentially occupied habitat outside the MMCAs during the breeding season, which occurs between April and September (Ralph et al. 1994, Hamer and Nelson 1995b). Logging at Owl Creek and Grizzly Creek can also take place during the breeding season (in April, August [after the 10th] and September; HCP IV-B1 page 33). In the short term, the logging of murrelet habitat during the breeding season would probably directly kill birds, especially during the incubation period (April-August; Hamer and Nelson 1995b). During incubation, adults sit on the egg for 24 hour shifts (Nelson and Hamer 1995a), so during all times of day an adult is on the nest. There is evidence that both adults and chicks have been injured (stunned) or killed during tree falling (Drent and Guiguet 1961, Harris 1971). Because adult survival is the most important factor in the survival of the species (Beissinger 1995), killing adult murrelets will contribute significantly to the decline of murrelet populations. Harvesting during the breeding season can also provide a significant adverse impact to murrelets because it is likely to disturb their breeding behavior.

KN-6

In the short term, logging of occupied or potentially occupied habitat during any time of year would probably kill and/or displace murrelets from historic habitat. Because murrelet populations are probably in decline (see above) and fecundity is low (only lay one egg and may not nest every year; Nelson 1997), loss of breeding by displaced birds will exacerbate population decline. Some displaced murrelets probably will not breed again and some probably will lose several years of breeding (see below).

In the long term, murrelet reproductive effort probably would be adversely effected because there is no scientific evidence that (1) we can create replacement habitat, (2) murrelets will move to other stands and locations when their habitat is lost (despite unsubstantiated comments to that effect in Divoky and Horton 1995), (3) young murrelets will disperse to new and distant areas (despite unsubstantiated comments to that effect in Divoky and Horton 1995); (4) murrelets will move into in newly created habitat; and (5) murrelets will successfully reproduce in newly created habitat. However, there is some evidence that adult alcids rarely move to other locations or colonize new areas because of very strong site fidelity (Nettleship and Birkhead 1985 page 243, Kress and Nettleship 1988). Marbled Murrelets exhibit site tenacity by returning to nesting stands year after year and sometimes reneesting in the same tree (Singer et al. 1995, Nelson 1997). It is also known from other alcids that some displaced birds will not breed again or at the very least lose several years of breeding (I. Jones, pers. comm.). The strategic location of replacement habitat (if it is possible to create) adjacent to currently occupied habitat

may allow some birds to move small distances into new areas if the appropriate site characteristics (e.g. platforms) are available. Despite the possibility of creating some new murrelet habitat that they can use successfully, based on what is known about site fidelity in alcids and murrelets and what has been observed in other alcids when their habitat is lost, some displaced murrelets probably will not breed again and some probably will lose several years of breeding. Given their low fecundity and nest success rates (most nests fail; Nelson and Hamer 1995b), any impact on reproductive effort will probably adversely impact survival and recovery (i.e., appreciably reduce the likelihood of survival and recovery).

To my knowledge the practice of knowingly logging occupied habitat has never been allowed in an HCP or otherwise for the reasons stated above. Logging occupied habitat goes against the recommendations of the Recovery Team (U.S. Fish and Wildlife Service 1997; see [a] above) and does not take into account the 50-100 year time frame required for new murrelet habitat to be available (if it can be created and used successfully) in Late Successional Reserves (FEMAT Report; U.S. Departments of Agriculture and Interior 1993) and elsewhere.

KN-6

(c) allow the harvest of 55-56% of old-growth redwood (619-818 ac unentered and 8,855-9,146 ac residual) on PALCO lands and 17-23% of old-growth redwood in the southern Humboldt region;

The HCP (IV-B1 pages 2, 6, 9, 25) and EIS/EIR (Appendix N pages 1, 3, 5-20; 3.10 pages 41-42, 127) attempt to justify the logging of a significant portion of the residual old-growth redwood on PALCO land and in the region by arguing that it is low quality habitat based on the following data and assumptions: (1) canopy closure (most <25%) and tree density (most <15 old-growth trees /ac) are low; (2) the height of the second growth is beneath the residual trees; and (3) because the larger trees were logged, the remaining trees have few nesting opportunities. From this, it is assumed that "lower quality" habitat will have lower nest success and has a lower probability of being used by murrelets.

While residual stands probably have fewer nesting opportunities (fewer trees and thus fewer platforms) than unentered stands, there are no data to demonstrate lower nest success in residual stands compared to unentered old-growth on PALCO lands. While Nelson and Hamer (1995b) found, based on a small sample of nests, that murrelets were more successful in nests located further from the stand edge and in trees with high cover over the nest cup, no differences were found between successful and unsuccessful nests with respect to tree density or canopy cover (these results need to be verified with a larger sample of nests). Marbled Murrelets are known to nest in stands with less than 15 old-growth trees per acre and less than 25% canopy cover (Hamer and Nelson 1995a, Nelson and Wilson 1997). For example, in Oregon in 1998, a pair of murrelets successfully fledged a chick from a small stand that contained six residual trees surrounded by young trees (< 20 years in age; Nelson, unpubl. data). The young trees were well below the level of the nest (they provided no cover to the nest) and residual tree canopy cover was about 20%. Here it appears the cover provided by the branches of the tree itself played a role in the success of the nest. However, nest success may be dependent on habitat characteristics at a variety of scales, including the larger landscape in which the nest is located. Despite more canopy cover in the unentered stands, these stands and the residual stands on PALCO lands are located within a highly fragmented landscape, therefore nest success could be equally low in both habitat

KN-7

types. Assuming residual stands are low quality compared to unentered old-growth is unjustified without data on nest success from PALCO lands.

Surveys on PALCO lands have demonstrated that murrelets use residual habitat (5,517 ac of the residual habitat is known to be occupied). Yet, based on limited surveys in the rest of the residual acres, an assumption is made that only 25% of the unsurveyed residual may be occupied (EIS/EIR Appendix N page 11). There is not sufficient evidence as to how this number was derived, and therefore it seems unjustified given that many of the residual stands have platforms. A detailed habitat assessment and more information from protocol surveys are needed to accurately determine how much of the residual habitat is not being used by murrelets.

KN-7

(d) allow the "take" of more than 251-340 murrelets;

A "take" of 251-340 murrelets represents the loss of 17-23% of the southern Humboldt population and 5-7% of the California population (HCP IV-B14, Table 5H). I believe these estimates are based on the assumption that most of the residual stands are not being used by murrelets. However, as stated above under Lack of Data, available information demonstrates that residual habitat on PALCO lands is used by murrelets for nesting. Based on this fact, there is a high likelihood that more residual stands will be found to be occupied when additional surveys are conducted and the percent of stands occupied is likely higher than 25% given the presence of suitable platforms (based on my ground observations). Whether this is true or not, given that the murrelet population in the southern Humboldt area appears to be in severe decline, a taking of even 251 murrelets (5% of the California population) will probably create an appreciable reduction in the likelihood of murrelet survival and recovery within northern California and Conservation Zone 4.

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(e) allow the fragmentation of occupied stands which are proposed as MMCAs;

According to the Pacific Seabird Group Marbled Murrelet Survey Protocol (Ralph et al. 1994, plus addendums), when a stand is determined to be occupied the entire contiguous stand is occupied. Stands are supposedly defined in the HCP as "contiguous old-growth redwood, either unentered or residual, with no more than a 100 m gap of unsuitable habitat in forest cover" (IV-B14 page 3). However, in looking at maps 1-10 presented in Section 12 of the HCP (IV-B12 pages 6-25) and the narrative at Appendix N (page 10), it is apparent that the lines drawn to delineate the boundaries of the MMCAs actually fragment contiguous, suitable forest habitat. In many instances only portions of the old-growth residual habitat in an area are delineated as habitat and the lines drawn appear to be arbitrary rather than ecological. The boundaries of the MMCA's need to be changed to incorporate entire contiguous residual stands.

KN-9

(f) allow currently unsurveyed habitat to be logged without surveys for murrelets;

Surveys are the only mechanism available to us as scientists and managers to determine and monitor the actual effects of any management plan on murrelets (FEMAT Report; U.S. Departments of Agriculture and Interior 1993). Without an accurate assessment of habitat quality, based on surveys for platforms and data on nest success, surveys throughout the PALCO landscape should be required in all unsurveyed habitat for an accurate assessment of the effects of this HCP on murrelets.

KN-10

(g) not provide adequate mitigation for the proposed take;

The HCP states that it was crafted to minimize the effects on the murrelet. However, given that the current federal and state regulations would require PALCO to save all occupied habitat and implement seasonal and operational restrictions in and near murrelet habitat, essentially the only short-term mitigation presented in the HCP is providing 300 foot buffers to occupied habitat on state lands (the Headwaters purchase is not considered mitigation [EIS/EIR page S-8]). Providing 421 acres of buffer (EIS/EIR Appendix N2, table 1A) does not mitigate for taking 8,823 acres of old-growth redwood and at least 251 murrelets. The creation of larger blocks of habitat in the long-term also will not mitigate this "take" because of the current bottleneck in available habitat and rapidly declining populations (see [1][a] above).

KN-11

(h) place the Headwaters Forest in public ownership;

The benefit of placing Headwaters in public ownership is that it will become permanent habitat for the murrelet. However, depending on how the BLM or other federal agencies manage the forest, public ownership could be detrimental to the murrelet. If public access is increased and activities, such as camping and picnicking, are allowed there is a potential for increased disturbance to nesting murrelets and for avian predators to be attracted to the area (see Hamer and Nelson 1998, Marzluff et al. 1998). Guarantees for appropriate management of this forest, including how disturbance will be avoided, should be provided to allow an accurate assessment of the impacts of placing this forest in public ownership.

KN-12

(2) The HCP does not minimize and mitigate the impact of "take" to the maximum extent practicable.

The HCP (IV-B1 pages 31-33) presents the following as mitigation: (1) establishing the Headwaters reserve and MMCAs; (2) enhancing existing habitat; (3) seasonal restriction of activities within 1/4 mile of known nest sites until the chick fledges; (4) establishing 300 foot buffers adjacent to suitable habitat on public land; (5) implementing seasonal restrictions in buffer zones; and (6) implementing limited seasonal restrictions in Owl Creek and Grizzly Creek.

As stated under (1)(g) above, current state and federal regulations would require saving occupied habitat and implementing seasonal and operational restrictions in and near murrelet habitat. The HCP proposes to save only a portion of the occupied habitat and log more than 8,855 acres of old-growth residual habitat, of which some high proportion is probably used by murrelets for nesting. In exchange for this logging, the HCP proposes to establish blocks of habitat and buffers whose purported benefit will not be realized for at least 30-40 years, if not after the life of the permit. The short-term loss of murrelet habitat and murrelets (at least 251-340) is not mitigated by creating blocks of reserve habitat in the distant future. The fatal flaw of the HCP is optimistically focusing on future habitat conditions without considering the need to ensure the short-term survival of the species during the next 50-100 year bottleneck (see [1][a] above).

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As stated above, other mitigations that should have been implemented include: (1) conducting occupancy surveys before logging outside MMCAs; (2) including the entire contiguous residual stands in the MMCA boundaries; (3) avoiding logging during the breeding season; (4) preserving all occupied habitat outside MMCAs; and (5) implementing a phased



harvest, where low quality habitat (which has been surveyed and determined to have no platforms or birds) is harvested first. In addition, consistent with my comments above about the Elliott State Forest HCP, the incidental take permit requested here should be for a period of less than 50 years.

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(3) The HCP would probably adversely modify and destroy critical habitat.

In total, 2,225 ac of old-growth redwood habitat that is designated as critical within the project area will be logged under the HCP (EIS/EIR Table 3.10-6). Both the HCP and EIS/EIR (3.10 page 49) state that most of the designated critical habitat does not currently contain the constituent elements of critical habitat, which include at least one of the following: (1) individual trees with potential nesting platforms; and (2) forested areas within 0.5 miles of individual trees with nesting platforms and a canopy of at least one-half the site potential tree height (U.S. Fish and Wildlife Service 1997). This conclusion is reached in the absence of data in the HCP on platform presence or abundance. A ground survey during my visits to PALCO lands revealed that potential nest platforms were present in most of the residual stands I visited. It is therefore probable that much of the designated critical habitat does include the primary constituent elements of critical habitat. So logging of these residual redwood stands would probably adversely modify and destroy critical habitat, thus appreciably reducing the likelihood of murrelet survival and recovery.

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(4) The HCP and EIS/EIR are not based on the best available scientific evidence.

(1) The HCP and EIS/EIR relied on unsubstantiated statements by Divoky and Horton (1995) with respect to site fidelity and juvenile dispersal; (2) The HCP and EIS/EIR relied on the Ralph and Miller report entitled "Abundance, Distribution, and Productivity of Marbled Murrelets along the Northern California Coast in 1997" (HCP IVB-4) for an assessment of the current population trends in northern California, yet, according to Amanda Stanley (see [1][a] above), Ralph and Miller failed to incorporate variance, failed to do a power analysis, and probably made a Type II error in their analysis. Thus Ralph and Miller probably made the incorrect conclusion about the status of the murrelet population in northern California; (3) The HCP and EIS/EIR relied on Ralph and Miller's estimates of 31% of occupied detections in the Bioregion coming from the Headwaters Grove (EIS/EIR 3.10-45) and 35% of occupied detections in the Bioregion coming from Humboldt Redwoods State Park (EIS/EIR 3.10-47), however numbers of detections are not synonymous with bird abundance; and (4) The HCP and EIS/EIR ignored a letter written to the U.S. Fish and Wildlife Service from the Pacific Seabird Group (PSG; July 1996) which outlined the types of habitat murrelets are known to use for nesting including small patches of trees or stands with only a few remnant old-growth trees.

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## (B) NEPA and CEQA

(1) The EIS/EIR does not adequately address the direct, indirect and cumulative impacts to the Marbled Murrelet and to its habitat.

It is my opinion that the EIS/EIR did not adequately address all the direct, indirect and cumulative impacts to the Marbled Murrelet and to its habitat. The EIS/EIR underestimated the impacts of the HCP because it did not fully consider: (1) the amount and quality of potential nesting habitat; (2) the focus on the long-term strategy of the HCP, which ignores the short-term bottleneck (50-100 years) in available habitat and population condition; (3) the effects of lost reproduction on survival and recovery of the southern Humboldt and Zone 4 populations; (4) the effects of harvesting, including disturbance, during the breeding season; (5) the accuracy of the at-sea surveys, and estimates of population numbers and trends; (6) the effect on the underlying assumptions of the HCP (residual is low quality and only 251-350 murrelets will be "taken") of not conducting surveys before logging; (7) the potential nest success rates in the unentered old-growth; (8) the effects of oil spills, which continue to occur off California and are known to kill murrelets (e.g., 1997 *Kure* oil spill; S. Newman, U.C. Davis Wildlife Health Center, pers. comm.); (9) other environmental and human factors that probably effect survival and reproduction including predation rates, gill-net fishing, and El Niño and other ocean anomalies; and (10) the cumulative impacts of all of the above and the loss of additional habitat in other areas of California and the tri-state area, through HCPs, land trades, and logging (past, present and future) of occupied habitat (unintentional or otherwise). The HCP and the EIS/EIR (Appendix Table M-2) also describes numerous activities within the MMCAs including e.g., gravel mining in Allen Creek and hunting, for which the EIS/EIR includes no analysis of impacts.

I consider this HCP to result in a significant adverse impact because it included: (1) removal of known occupied and potentially occupied habitat; (2) logging during the nesting season; (3) loss of breeding by displaced birds; (4) take of 251-340 murrelets; and (5) fragmentation of occupied stands.

(2) The alternatives presented do not address a full range of possibilities.

Alternatives 2 and 3 (U.S. Fish and Wildlife Service alternatives) as presented in Section 13 of the HCP are possibilities that could have been addressed in the HCP. There are also a variety of other alternatives that could have been presented which cut less suitable and potential habitat than Alternative 2. For an example see comments by Harry Carter.

(3) The mitigation measures are not sufficient to mitigate the impacts of the HCP.

See (1)(g) and (2) above under the ESA section. In particular, providing 421 acres of buffer (EIS/EIR Appendix N2, Table 1A) does not mitigate for taking 8,823 acres of old-growth redwood and at least 251 murrelets. The creation of larger blocks of habitat in the long-term also will not mitigate this "take" because of the current bottleneck in available habitat and rapidly declining populations (see [1][a] above). Therefore, as stated above, the short-term significant adverse impacts are not mitigated by the long-term potential benefits of the HCP.

The EIS/EIR does not include an analysis of "other management restrictions as described in Appendix Table M-2" (3.10-130). Therefore the EIS/EIR conclusion that significant impacts

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(10 sub-  
comments)

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will be mitigated is not supported.

(4) The environmental setting description is not accurate.

The HCP and the EIS/EIR fail to describe the environmental setting as it pertains to the Marbled Murrelet because, as is stated above, surveys have not been conducted in all unentered and residual old-growth stands to determine murrelet presence and the abundance of potential nest platforms.

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(5) The conclusions in the EIS/EIR are not supported by the best available scientific evidence on population trends, habitat suitability, the amount of potential habitat, the length of time before currently unsuitable habitat will become suitable, and the cumulative impacts on murrelet populations in California.

The EIS/EIR appears to assume that the northern California population is not in decline, yet modeling and data analyses demonstrate that this population is probably currently in decline by at least 4-8% per year (Beissinger 1995, comments by A. Stanley) and probably has declined as much as 48% in the last 10 years (comments by A. Stanley).

The EIS/EIR assumes that residual habitat is not important to murrelets and yet 28% of what is proposed for harvest is known to be occupied, platforms are available in most of the stands (of those I visited), and further surveys in this habitat type will probably reveal that many of the stands are currently used by murrelets for nesting. The amount of potential habitat is therefore likely more than estimated.

KN-20

The EIS/EIR, like the HCP, assumes that the future availability of blocks of suitable habitat will offset the logging of a significant amount of potential habitat and the take of many murrelets (at least 17-23% of the southern Humboldt population) in the short term. This conclusion does not account for the length of time required for unsuitable habitat to become suitable, the lack of evidence that murrelets will move into newly created habitat, the current declining populations, and the bottleneck of 50-100 years before significant amounts of unsuitable habitat will become suitable on PALCO lands and elsewhere in northern California and Conservation Zone 4.

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